

Plastics Challenge...

An opportunity for students to apply their D&T skills to find solutions to problems caused by waste plastics globally.



This article shares the story of how Rachel Holland, a D&T teacher and textiles specialist and Eva Foster, an enterprise and careers co-ordinator from Myton School combined their skills to run a D&T and enterprise day for their Year 7 students.

Myton school is a large secondary school in Warwick, with 1,700 students on roll, 270 of which are in the sixth form. The school has held academy status since July 2011.

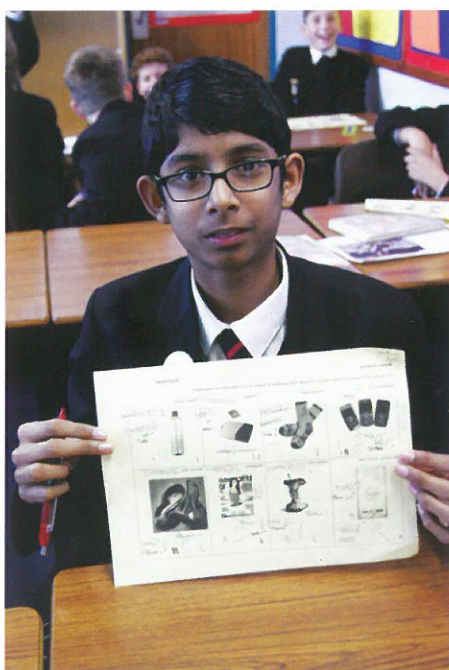
Myton holds a curriculum freeze day once a term for the whole school, when regular lessons are suspended in favour of a program of activities to enhance students experience and learning outside the constraints of the curriculum. The school recently made some significant changes to its daily practice including the introduction of a Key Stage 3 diploma for students in Year 7 and 8. The diploma encourages students to collect and present evidence of a group of ten learning habits in order to improve learners' employability skills and prepare for the needs of the local and national market place. STEM was also introduced as an individual subject at Key Stage 3 to complement D&T, science and maths and a restructuring of the pastoral

system to introduce vertical tutoring and a programme of P4C (Philosophy for Children).

Curriculum freeze day

The spring term curriculum freeze day 2015 was to be organised in year groups. Previously Year 7 had completed a 'renew and reuse' challenge where students had worked in teams to produce a range products manufactured from reused materials to then sell at a trade fair attended by parents. While this event had run for a couple of years with good success we were looking for ways in which we could adapt this activity to link more closely with the schools new developments and real businesses in the private and voluntary sector. The Plastics Challenge from Practical Action seemed to be a great resource which we could use to deliver a stimulating and informative activity to a large year group underpinned by a link to D&T, enterprise education, STEM and P4C. It would enable us to provide students with an opportunity to increase their levels of enterprise capability through a one off activity that could be delivered in a way to suit our particular needs.

Running the activity as a suspended timetable activity gave us the opportunity to plan a varied range of activities with a practical outcome and a presentation at the end of the day. The Plastics Challenge resource has a series of tasks which can be run as a complete sequence, or can be dipped into to develop a more personalised activity. We chose to divide the day into three main sessions.



The Hamro Mahila Women's Group in Nepal was set up after a group of women were trained and supported by Practical Action in making crafts from 'waste' plastic. Their enterprise allows them to work in a safer environment whilst earning money.

- Your challenge is to design a product that could be made by the women's group from locally found waste plastic. The women have the use of a sewing machine, iron and basic craft tools. The products need to be made cheaply and safe to use.
- At the moment they make pencil cases, coasters and baskets, but are looking to expand their range of products.



Session 1

Exploring context and research tasks

Students spent time exploring the UK and Nepalese context within the project of global plastic waste leading to them identifying problems and questions which they felt were important. They began with the starter activity 'What do you see?' This activity provided some thought provoking photographs which students could explore in a philosophical way by asking questions not only about what was happening in the pictures but also why it was happening and how it could be allowed to happen. They then moved onto the 'waste timeline' which enabled students to gain an awareness that a range of materials that may be thrown away and end up in landfill take different lengths of time to decompose and therefore have varying impacts on the environment. Students then completed the 'lifecycle of a plastic drinks bottle' task. What was great about this particular task was that it was an item that all students could relate to but it allowed them to develop a greater understanding of a product from 'cradle to grave' and not just in the context they would usually associate it with. This led

onto '4R's: rethink, reduce, reuse and recycle' allowing students the chance to explore the opportunities for plastics to reduce their negative impacts on the environment and people.

Session 2

Focused tasks, designing and making

The combination of tasks from session 1 linked aspects of science and D&T to extend students understanding of the context. Session 2 focused on developing practical outcomes that could meet the requirements of students chosen design contexts for either a Nepalese or UK market. Each group was set a 'mystery product challenge' – where they selected an envelope with the product they were to create and the context for which it needed to suit. Each team then divided into two groups, a design team to focus on making the product and a marketing team to create a strategy to turn plastics into profit. In liaison with the design team the marketing team were tasked with planning a strategy for the afternoon trade fair, to which parents, governors and local businesses were invited to attend. To ensure the practical task was manageable within the fixed time frame a set of step-by-step instructions for making the basic products were provided to the teams inside their envelopes. These products were a pencil case, rosette, post-it notebook, bunting and gift bag and could be used as a starting point to develop a prototype product. The decision was also made to stick to using one material that was both easily accessible and versatile enough to produce a range of products – plastic carrier bags. The main advantages of using these was the range of colours they were available in, the ease of working with the material in terms of cutting and fusing and the flexible and durable nature of the material retained after being formed onto a range of products. Working with 300 students in one go on this





challenge also meant that materials and equipment needed to be realistic to achieve within a small budget and easily accessible. Alongside the carrier bags which were collected over a period of a few months prior to the event, the equipment needed for each group was minimal and included basic stationary items, scissors, an iron and ironing board, cardboard (also recycled) and double sided tape. The teams had 80 minutes to produce their prototype products and develop their marketing strategy for their stand at the trade fair. To enhance the enterprise link with the activity the students were made aware of the set of criteria they would be judged on which included quality and innovation of the product, quality of their marketing strategy, presentation of their trade stand, meeting the design brief and presentation of their idea and ability to answer questions. Each team would be judged against these criteria the highest scoring team announced the winners.

Session 3

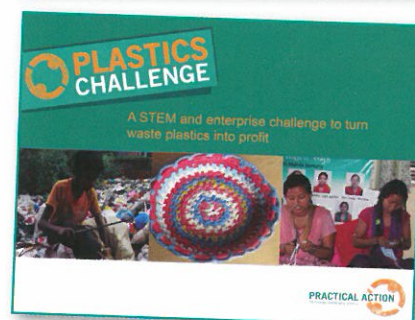
Marketing and evaluation

Two to three members of the marketing team were chosen to present the products at the trade fair. The teams had to decide who would most effectively be able to sell their product to the judges. They would also need to be able to answer questions from people visiting their stand. Myton were lucky to be joined for the trade fair by two members of the Practical Action team based in Rugby. They assisted with the judging of teams and listened to each group's presentation before making a decision on the winning stand. It was good for the students to be able to present work to an impartial judge who did not know them. While the teams were being judged it was important that students had chance to reflect and evaluate on the day's activities so that we could assess the impact that the enterprise challenge had on their learning experience. The reflection activity focused on asking

students to identify how they had been able to demonstrate the ten learning habits throughout the range of activities they had completed. Using these habits as a tool rather than a set of specific evaluation questions enabled students to think about the skills and knowledge they had developed in a broader sense and didn't restrict them to associating the aspects to particular subjects. They completed this as an online activity so that information could be easily and effectively collated for staff to evaluate the activity. The students and staff also completed an exit ticket to summarise what they had learned, what they already knew and to identify any areas they might need more help with. The overall response to the day was fantastic and we would recommend this as a great challenge to deliver in school as a resource adaptable to your own school requirements.

As a result of running the day, the school was given the opportunity to present the challenge and their work at The Big Bang Discovery Friday in March at the NEC.

A small group of Year 7 students undertook this challenge joined by Mrs Foster. The students were required to run a stand at the show which demonstrated how they had engaged with the plastics challenge and the work they had produced. They also ran a practical activity where visitors were able to have a go at using recycled plastic bags to create their own piece of bunting to add to a length which they were adding to over the course of the day. The students excelled themselves, representing both the school and the challenge. They were able to demonstrate a range of the learning habits which now underpin learning at Myton School.



All the materials including teacher's notes, students sheets, poster and PowerPoint are free to download at: www.practicalaction.org/plastics-challenge